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State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

February 11, 2015

Sam Smith
Utah Sand & Gravel LLC
847 West 500 South
West Bountiful, Utah 84087

Subject: Initial Review of Notice of Intention to Commence Large Mining Operations and Directive to Respond, Utah Sand & Gravel, North Salt Lake Mine, M/035/0051, Utah County, Utah

Dear Mr. Smith:

The Division of Oil, Gas and Mining has reviewed the referenced Notice of Intention to Commence Large Mining Operations (Notice) which was received January 11, 2016. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages for the original Notice using redline and strikeout text. After the Notice is determined technically complete, the Division will ask that you submit two clean copies of the complete Notice. Upon final approval, both copies will be stamped approved and one will be returned for your records.

Please submit your response to this review by March 11, 2016.

The Division will suspend further review of the Notice until receiving your response to this review. Please contact the lead for this project Leslie Heppler, at 801-538-5257 or me at 801-538-5261 if you have questions about the review or if you would like to schedule a meeting to discuss the comments. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB: lah: eb

Attachment: Review

cc: lynn.pace@slcgov.com, wayne.mills@slcgov.com, jasisson@slco.org

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**INITIAL REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS**

**Utah Sand & Gravel LLC
North Salt Lake LMO**

**M/035/0051
February 11, 2016**

General Comments:

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
1	General	The Notice should be formatted to easily incorporate additional revisions and amendments. The Division recommends changing "Utah Sand & Gravel" to "the Operator."	lah	
2	General	The Division will have additional comments based on the responses to this review. Please attempt to provide a complete, technically adequate submittal.	lah	
3	Omission	Please submit documentation that a complete cultural resource survey (CRS) has been submitted under the small mine application.	lah	
4	Cover sheet	Please add the file identification number to the cover sheet.	lah	
5	Table of Content	The Table of Contents needs to account for the Appendices under the sub-consultants reports and reference plates and secondary figures. As written, photographs are shown in Appendix I, but in the permit the photographs referenced are actually in Appendix II, Figure A2.	lah	
6	Binder	Mining plans are dynamic and need to be updated as plans change by using an MR-REV form. Please submit all future plans in three-ring binders that can be easily and cost effectively updated without re-submittal of the entire document.	lah	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
7	Appendix III	The Geotechnical Investigation could not be properly reviewed for the following reasons: a) Plate A-1b is not readable, b) Plate A-1a does not show simple geomechanical properties, such as strike and dip or enough of the surrounding geology, c) The report is listed as an "Updated Geotech" Investigation, and this is the first geotech report for the permit, d) The executive summary does not match the request for a variance R647-4-112, e) The groundwater section does not adequately address groundwater conditions, f) It is unclear why geochem samples were included in the Geotechnical report; perhaps re-title the Geotechnical and Geochemical Report g) The executive summary notes a factor of safety (FOS) of 1.5, yet only two runs show a FOS of 1.349, h) As shown, all geomechanical data was taken from the fault zone and doesn't represent rock characteristics away from the fault, i) Plates D-1 & D-2 note "none" for water surface, they do not include either the Qpc or the Md as shown on the geologic map, and section locations are not shown on a plane view map, j) There is no subsurface data and no data was collected from the outcrops above the floor of the pit, k) Typo: DOGAM. A geotechnical report is only required for a variance and no variance was requested. If the Operator decides to request a variance a detailed review will be done of the geotech report.	lah	

R647-4-104 – Operator Information and Surface and Mineral Ownership

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
8	Page 4	Please specify the person that will have signatory authority. As a courtesy by the Division this review was addressed to Sam Smith. Please add the name of the person who will have the signatory authority.	lah	

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
9	All Maps	All maps – Please change the text scale from a written description to a bar scale.	lah	

105.1 - Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
10	Figure 1	Add the number of acres to the property boundary box.	lah	
11	Figure 2	"North Salt Lake Mine" is listed as an "adjacent mine." Please remove the North Salt Lake Mine from the Legend block and simply label the map and remove the shaded yellow highlighted square.	lah	
12	Figure 2	Identify the type of utility, include basic information on the type of utility, such as 320 KW power line or buried 72" pipe.	lah	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
13	Page 7 Para 1	Rewrite the last sentence: as OGM does not “engage” between the utility owner and the operator. It is the operator’s responsibility to comply with R647-1-102.3.	lah	

105.2 - Surface facilities map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
14	Figure 4	Use a newer base map and add a list and description of the facilities. This will tie to the bond calculation sheets and be utilized in bond releases.	lah	
15	Figure 4	Include growth medium stockpile(s).	lah	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
16	Page 7 & Figure 5	Section 105.3, Reclamation Activities, refers to Figure 5 for reclamation activities. This map only shows final contours. A reclamation map is needed showing the various reclamation activities and treatments that will be used throughout the site, such as regrading , topsoil replacement (different depths), seeding methods, etc.	lk	
17	Figures 5, 6, & 7	The cross sections are incomplete and do not follow the text. At a minimum show the actual location of the section on the plane view maps, and include lines that delineate pre-mining, during mining, and final reclaimed slopes. Cross sections must match text. Do not use vertical exaggeration.	lah	
18	Omission	Provide a SWPPP map to show how surface runoff will be managed and protective of downstream receptors.	mpb	
19	Figure 5	There is a cross section listing in the legend with no symbol and no cross section location lines on the map. Please show A-A’ and B-B’ lines on the map.	mpb	
20	Figure 5 & page 7 para 2	As shown on Figure 5 and the cross sections, the pit’s lowest elevation will be 4270 feet. If that is the operator’s intent, the text will need to reflect the design.	lah	

105.4 - Photographs

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
21	Omission	The Division recommends including photographs for future documentation. The Division also recommends bringing both Figure B1 and B2 from Appendix B of Appendix II into the NOI.	lah	

105.5 – Underground & 105.6 – Other maps

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
22	Page 7. Para 7 & 8	Paragraph 7 regarding Figure 7 should be moved to Section 105.3. There is no Section 105.6 in R647-4. Paragraph 8 should also be moved to Section 105.3	lah	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
23	Page 8 Para 2	Paragraph 2 regarding the geologic map should be moved to Section 105.3. In addition Figure 9 is incomplete, for the same reasons noted above concerning the geologic maps in the Geotechnical report. In additional the faults were left off of this map.	lah	

R647-4-106 - Operation Plan

General Operation Comments

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
24		Due to the lack of information with the cross sections, more questions could be generated regarding the Operation Plan.	lah	

106.1 - Minerals mined

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
25	Page 8, para 3	Rewrite the last sentence as topsoil is to be used on site for reclamation purposes.	lah	

106.2 - Type of operations conducted, mining method, processing etc.

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
26	Page 8	The text notes a specific contractor that will be used for blasting. The Division recommends that it refer to the "blasting contractor."	lah	
27	Page 8	More information is needed on the interview with the blasting consultant as a reference.	lah	
28	Page 8	Based on the cross sections submitted, it will be difficult to hold a 70-degree slope without pre-splitting. In other words, the 20 foot bench noted in the text could lose integrity. More information is needed.	lah	

106.3 - Estimated acreages disturbed, reclaimed, annually

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
29	Page 9 para 2	The Notice notes 22.92 acres, but none of the maps show any activity in the southern triangle.	lah	

106.4 - Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
30	Page 9	More information is needed regarding annual production estimates.	lah	

106.5 - Existing soil types, location, amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
31	Page 9	The soil data provided is incomplete. Please provide results for the following additional parameters: texture, pH, EC (conductivity), percent organic matter, CEC (cation exchange capacity), phosphorus (as P ₂ O ₅), and potassium (as K ₂ O).	lk	
32	Page 10	Two to fifteen feet of soil material is not considered "relatively thin." For just the 12 acres of undisturbed area, this results in a range of 38,720 to 290,400 cubic yards of soil. This is considered a significant amount, and plans to salvage and stockpile topsoil for reclamation are needed (see R647-4-106.6).	lk	

106.6 - Plan for protecting & re-depositing soils

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
33	Page 10	Just because the topsoil is "relatively thin" is not adequate justification for not salvaging and stockpiling the topsoil for future reclamation purposes. Please provide plans to salvage and stockpile all topsoil and show locations of topsoil stockpiles, volumes of soil to be in each stockpile, and how soil stockpiles will be protected from erosion and further impacts.	lk	
		Provide plans on how soil materials will be redistributed at the time of reclamation, including type(s) of equipment to be used, depth of soil replacement (it is recommended that a minimum of 12 inches be replace) and amendments/fertilizer that may be needed (to be determined after all soil analytical data is provided).	lk	
		If other material is to be used as a substitute soil, then a complete analysis for that material is needed as well, including: texture, pH, EC (conductivity), sodium adsorption ratio, percent organic matter, CEC (cation exchange capacity), total nitrogen, nitrate nitrogen, phosphorus (as P ₂ O ₅), and potassium (as K ₂ O). The ratio of this material and the topsoil is needed, or if topsoil will be used in one area and the substitute materials used on another area, it needs to be identified on the reclamation map. Assuming the soil depth of 2-15 feet is correct, there should be sufficient soil material for reclamation of the entire site.	lk	

106.7 - Existing vegetation - species and amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
34	Page 10	Please provide data showing the percent ground cover of vegetation at the site. This data is missing from this section as well as the SWCA report.	lk	
35	Page 10	The last paragraph on this page identifies five state-listed and two county-listed noxious weeds occurring onsite. The last sentence states that "...if pervasive weed growth occurs, a management plan will be set it place." Given the invasive nature of noxious weeds, a weed control plan needs to be developed and implemented as soon as possible. Noxious weed infestations can negatively affect establishment of a permanent, diverse vegetation community that is of utility for the post-mining land use, and can delay release of reclamation surety by several years. Note, the SWCA report also recommends a weed control plan for the noxious weeds.	lk	

106.8 - Depth to groundwater, extent of overburden, geology

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
36	Page 11	There is a statement which says there is "no groundwater detected," but it does not specify to what depth. A review of Division of Water Rights information should indicate the depths to groundwater for nearby wells. Please provide a local depth to groundwater.	mpb	
37	Omission	Please show the locations of the wells used to identify groundwater depths on one of the existing maps.	mpb	

106.9 - Location & size of ore, waste, tailings, ponds

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
38	Page 11 Para 3	Regional structural geology is discussed in the text, and the geologic maps do not show enough localized geology of the mine area. The geologic maps and text need to be relevant to the mine site and the permit. Additional comment can be generated in future reviews, based on future submittals.	lah	

106.10 - Amounts of material moved (including ore, waste, topsoil, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
39	Page 11	More information is needed based on submittals of new cross sections.	lah	
40	Page 11	No information is included about waste and topsoil piles.	lah	

R647-4-109 - Impact Assessment

109.1 - Impacts to surface & groundwater systems

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
41	Incomplete	Impacts to both surface and groundwater systems cannot be determined due to a lack of information provided. At a minimum, please provide the map from the SWPPP for the site as described previously, and depths to groundwater obtainable from the Utah Division of Water Rights, with a map showing the well locations from which the data was obtained.	mpb	

109.2 - Impacts to threatened & endangered wildlife/habitat

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
42	Page 12	The Division is waiting for a report from the Fish and Wildlife Service before making comments about this section.	lk	

109.3 - Impacts on existing soils resources

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
43	Page 12	This section does not—and needs to—discuss impact to the soil resources (past and future), such as volume of material, nature of impacts, or the extent of impact (spatially or in time), nor does it provide a discussion of plans to mitigate these impacts (refer to R647-4-109.5).	lk	

109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
44	Omission	Provide a SWPPP map so the Division can evaluate methods and technologies to be used to manage erosion and sediment control.	mpb	
45	Page 13 para 1	Please note comments above relating to the Geotechnical report. In addition the report needs to include a discussion on bedding plane failures.	lah	
46	Page 13	The text needs to include a commitment to reevaluate the slope stability if any of the geomechanical, structural or phreatic conditions change from what is written in the geotechnical report regardless of the slope angle.	lah	

109.5 - Actions to mitigate any impacts

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
47	Omitted	See comments under 109.3.	lk	
48	Omission	Include a statement under section 109.5 on the “actions to mitigate.” Please feel free to reference Section 109.1 thru 109.4, but each potential impact needs to discuss the mitigation of the impacts listed above under 109.	lah	

R647-4-110 - Reclamation Plan

110.1 - Current & post mining land use

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
49	Page 13	While Utah Sand and Gravel may not have post-mining plans for the property, there still will be a use of the property. If light manufacturing is not viable at the end of mine life, the operator is expected to reclaim the area to open space, which would require the removal of all facilities and structures, eliminating any public safety or environmental hazards, and establishing a diverse, perennial vegetative cover to stabilize and control erosion. Note, most of the above is discussed somewhere in the Notice, but should be at least summarized in this section.	lk	
		In addition include a discussion in the text regarding the post mining land use of the hillside versus the pit floor.	lah	

110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
50	Page 13	(See comments under 106.6 above.) Please describe how soil materials and seeding will take place with 100-foot lifts and 20-foot wide benches. Will there be access to the benches with equipment at the end of mine life, or will there be on-going reclamation before benches are abandoned to replace topsoil and revegetate?	lk	
51	Page 14	The Notice says, "Highwall berms will be left along those portions of the highwall and sidewall rim that are over five feet high." Is this referring to the height of the berm, or the height of the highwall and side wall rims? If referring to the height of the berm, this would leave the berm approximately 15 feet wide, which does not leave sufficient room for seeding equipment. Also, what is the volume of material needed to construct the berms, and where will it come from?	lk	
52	Page 13-14	As written, the text notes a 1H:1V slope angle. This does not match text elsewhere in the Notice or the cross sections. In addition the plan commits to a 45-degree average slope, which is not possible based on the rest of the plan.	lah	

110.3 - Description of facilities to be left (post mining use)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
53	Page 14 Para 3	Post mining land use is noted under Section 110.1.	lah	

110.5 - Revegetation planting program

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
54	Page 14	A revegetation planting plan is needed to establish a permanent, diverse vegetation cover capable of supporting the post mining land use. At a minimum, this plan needs to include seedbed preparation (including any amendments and/or fertilizers that may be needed, based on the soil analysis); timing of seeding (late fall is best); an acceptable seed mix including seeding rates, seeding method(s) (i.e. drilling, broadcasting, aerial seeding, etc); and the use of mulch (type and rate) as appropriate or needed. Since there are already noxious weeds on-site, a weed monitoring and control plan should also be provided for the post-reseeding time that would be in place until the revegetation standard is met and the site is released.	lk	
55	Pages 14 & 15	It appears that the seeding plan is to mix the seed with the topsoil (6 inches) and spread over the site. This is not an acceptable seeding practice. Many of the desirable species listed need to be at or near the surface. Also, given the soil volume that would be expected from a 2-15-foot depth on the undisturbed portion, it is reasonable to expect at least a foot of soil material for reclamation to be salvaged. This would also eliminate the need to import or create a suitable soil material for reclamation (see 106.6).	lk	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
56	Page 15	The proposed seed mix is not acceptable. As shown, it is unlikely that a permanent, diverse vegetative cover would establish. It is illegal to seed weeds, such as broom snakeweed, common ragweed, and curlycup gumweed, and they need to be eliminated from the mix. Also, it is unlikely any Gambel oak will be established from seed, especially at the proposed seeding rate of 0.02 pounds per acre. Establishing Gambel oak would be more successful from transplant stock. Seeding rates of other species need to be adjusted. Seeding rates for small-seeded species need to be decreased, and the seeding rates for the most of the larger-seed species need to be increased. Other species, such as Wyoming big sage, Palmer penstemon, and forage kochia, should be added. Attached is a recommended seed mix. If acceptable, please include in the Notice. Otherwise, please develop a different mix than the one currently proposed.	lk	
57	Page 14	It is unclear what the proposed post mining reclamation plan is. Please submit a map for bonding purposes which will show the areas to be topsoiled and seeded, including depths, etc.	lah	

R647-4-112 - Variances

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
58	Omitted	If the existing topsoil is not salvaged and stockpiled for reclamation, then a variance needs to be requested. The request needs to identify the appropriate rule for which it is being requested, a detailed description of the variance being requested, and an alternative plan that demonstrates that the intent of the rule for which the variance is being requested will be achieved.	lk	
59	Omission	No variance has been requested for highwalls, which is contrary to cross sections and text.	lah	

R647-4-113 – Surety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
60	Cash Surety	All operators that want to provide a cash surety must also provide an accurately completed IRS Form W-9 with the cash deposit. The bank where the State Treasurer will deposit the cash must approve and accept the W-9 prior to the Division granting final approval of the permit. (General comment; no response needed for the Notice.)	OGM	
61	Omission	Please provide the backup data for the reclamation cost estimate shown on page 14. Use the Divisions bond calculation sheets on its web site at www.ogm.utah.gov .	lah	
62	Page 15	The text indicate phase 1, but there is no other reference in the text to phase 1. Please make the text consistent throughout the Notice.	lah	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
63	Omission	Appendix F is missing. In the meantime, while this permit is being reviewed, please submit the additional \$870,158 (based in the consultants estimate) surety until the permit has been completed and approved. Please see page 15 for the consultant's estimate.	lah	

Attached: Recommended Seed Mix

Recommended Revegetation Species List
for

**Utah Sand and Gravel
North Salt Lake Mine
M/035/0051**

<u>Common Name</u>	<u>Species Name</u>	<u>*Rate lbs/ac (PLS)</u>
Intermediate wheatgrass	<i>Elymus hispidus</i>	2.0
Western wheatgrass	<i>Elymus smithii</i>	2.0
Bluebunch wheatgrass	<i>Elymus spicatus</i>	2.0
Sandberg bluegrass	<i>Poa secunda</i>	0.1
Sheep fescue	<i>Festuca ovina</i>	0.25
Western yarrow	<i>Achillea millefolium</i>	0.1
Common Sunflower	<i>Helianthus annuus</i>	1.0
Ladak alfalfa	<i>Medicago sativa</i>	1.0
Yellow Sweetclover	<i>Melilotus officinalis</i>	0.5
Palmer penstemon	<i>Penstemon palmerii</i>	0.5
Lewis flax	<i>Linum lewisii</i>	1.0
Pacific aster	<i>Aster chilensis</i>	0.1
Wyoming big sagebrush	<i>Artemisia tridentata wyomingensis</i>	0.1
White stem rabbitbrush	<i>Chrysothamnus nauseosus albicalus</i>	0.2
Forage kochia	<i>Kochia prostrata</i>	0.5
Total Seed		11.35 lbs/ac

* Rate is recommended for broadcast seeding methods.